REMARKS

Claims 1 through 28 were presented for examination and rejected.

The applicants respectfully traverse the rejections and request reconsideration in light of the following comments.

35 U.S.C. 102 Rejection of Claims 1-7, 10-16, and 19-26

Claims 1 through 7, 10 through 16, and 19 through 26 were rejected under 35 U.S.C. 102(b) as being anticipated by D.J. Dupray, U.S. Patent 6,249,252 (hereinafter "Dupray"). The applicants respectfully traverse the rejection.

Claim 1 recites:

> **1.** A method comprising:
>
> *deducing a signal strength of a first signal, R_D, at a wireless terminal based on a transmit strength of a second signal, T_U, that is transmitted by said wireless terminal*; and
>
> estimating the location of said wireless terminal based on said signal strength of said first signal, R_D.
>
> (*emphasis supplied*)

Nowhere does Dupray teach or suggest, alone or in combination with the other references, what claim 1 recites – namely deducing a signal strength of a first forward signal, R_D, at a wireless terminal based on a transmit strength of an reverse signal, T_U, that is transmitted by the wireless terminal. In other words, claim 1 recites using deductive logic to determine the signal strength of a forward signal, R_D, at a wireless terminal based on the strength of a signal transmitted by the wireless terminal, T_U. To reiterate, nowhere does Dupray teach or suggest *determining the signal strength of a forward signal at a wireless terminal based on the strength of an reverse signal transmitted by the wireless terminal*.

The Office action cites three portions of Dupray to substantiate the rejection. **In summary, the relevant portion of Dupray teaches that the location of a wireless terminal can be estimated based on:**

1. **the signal strength of forward or "downlink" signals, or**
2. **the signal strength of reverse or "uplink" signals, or**
3. **the signal strength of both the forward and the reverse signals,**

but Dupray does not teach how to logically deduce the signal strength of a forward signal based on the signal strength of an reverse signal.

Furthermore, Dupray teaches that the signal strength of the forward signals can be used more readily than the signal strength of the reverse signals because the reverse signals' signal strength must to be adjusted to compensate for the fact that the transmit power of the reverse signals changes nearly continuously. In contrast, the transmit power of the forward signals changes very little, and, therefore, does not need to be compensated.

A careful reading of each of the three portions of Dupray proves that Dupray does not teach or suggest what is claimed.

I. First Cited Portion of Dupray

(column 25, line 63, through column 26, line 48)

Dupray recites:

> Note that in some embodiments of the present invention, ***both measurements of forward wireless signals*** to a target MS 140, ***and measurements of reverse wireless signals*** transmitted from the target MS to a base station ***can be utilized by various [models for estimating the location of the target MS]***.
>
> Dupray, column 25, line 63 through 67
>
> (***emphasis supplied***)

This sentence teaches that both measurements of the signal strength of the forward signals and the reverse signals can be used to estimate the location of a wireless terminal.

Dupray continues:

> In some embodiments of the present invention, the received relative signal strength ($RRSS_{BS}$) of detected nearby base station transmitter signals along the forward link to the target mobile station can be ***more readily*** used by the location estimate modules (FOMs) ***since the transmission power of the base stations 122 typically changes little during a communication with a mobile station***.
>
> Dupray, column 25, line 67 through column 26, line 12
>
> (***emphasis supplied***)

This sentence teaches that the measurements of the signal strength of the forward signals can be more readily used to estimate the location of the wireless terminal than the reverse signals because the transmission power of the forward signal changes little.

Dupray continues:

> However, the relative signal strength ($RRSS_{MS}$) of target mobile station transmissions received by the base stations on the reverse link may ***require more adjustment prior to location estimate model use***, since ***the mobile station transmitter power level changes nearly continuously***.

> Dupray, column 25, line 67 through column 26, line 12
> (***emphasis supplied***)

This sentence teaches that the measurements of the reverse signals might need to be adjusted prior to use in estimating the location of the wireless terminal because the transmission power of the reverse signal changes nearly continuously.

Why does Dupray teach that the measurements of the reverse signal need to be adjusted but that the measurements of the forward signal do not? Because the model for estimating the location of the wireless terminal assumes that changes in the strength of the signals is due to changes in path loss due to movement of the mobile station and not to changes in the transmitter power. The transmit power of the forward link does not change, and, therefore, no adjustment is needed to the forward link measurements. In contrast, the transmit power of the reverse signal does change, and, therefore, an adjustment is needed to the reverse signal measurement to compensate for the change in transmit power.

In other words, the measurement of a signal can change because of two factors: (1) a change in transmit power, and (2) a change in path loss due to the movement of the mobile station. The model for estimating the location of the wireless terminal assumes that changes in the signal measurements are due solely to changes in the path loss due to the movement of the mobile station and not to changes in transmit power.

Therefore, if there are changes in the transmit power, the affect of those changes must be negated. The forward transmit power does not change, and, therefore, no adjustment is necessary. The reverse transmit power does change, and, therefore, the measurements of the reverse signals are adjusted.

Dupray continues:

> In the CDMA air interface case, to perform such adjustments for wireless signal measurements of the reverse link, one adjustment variable and one factor value may be required by the signal processing subsystem 1220, i.e., (a) an instantaneous relative power level in dBm (IRPL) of the target mobile station transmitter, and (b) the mobile station 140 Power Class. ***By adding the IRPL to the $RRSS_{MS}$, a synthetic or derived relative signal strength ($SRSS_{MS}$) of the target mobile station 140 signal detected at the BSs 122 can be derived***, as shown below:
>
> $SRSS_{MS} = RRSS_{MS}$ + IRPL (in dBm)
>
> Dupray, column 26, line 12 through 21
>
> (***emphasis supplied***)

These sentences teach that the adjusted reverse signal strength equals the measured reverse signal strength plus the instantaneous transmit power of the wireless terminal.

Dupray continues:

> ***Accordingly, $SRSS_{MS}$ is a corrected indication of the effective path loss in the reverse direction (mobile station to BS), and therefore is now comparable with $RRSS_{BS}$ and can be used to provide a correlation with either distance or shadow fading because it now accounts for the change of the mobile station transmitter's power level.***
>
> Dupray, column 26, line 22 through 28
>
> (***emphasis supplied***)

This sentence teaches that the corrected reverse signal is (1) an indication of the path loss from the wireless terminal to the base station, and (2) "comparable" to the uncorrected forward signal.

The first statement reinforces the fact that changes the signal strength must be due to path loss and not to changes in transmit power. The second statement also reinforces this idea by indicating that the reverse signal measurements are comparable with the forward signal measurements because all of the changes in both signals are now due to path loss and not to changes in transmit power.

The Office has erroneously interpreted this sentence to mean that the adjusted reverse signal strength is equal to the unadjusted forward signal strength. Even if this were the correct interpretation of the sentence, it is incorrect as a matter of physics. In contrast, claim 1 recites how, with other information, to determine the forward signal strength based on, among other things, the reverse signal strength, but this is not taught by Dupray.

Dupray continues:

> Note that the two signal measurements $RRSS_{BS}$ and ***$SRSS_{MS}$*** can now be processed in a variety of ways to achieve a more robust correlation with distance or shadow fading.
>
> It is well known that Rayleigh fading appears as a generally random noise generator in wireless signals. Thus, Rayleigh fading can substantially degrade the correlation of either $RRSS_{BS}$ or ***$SRSS_{MS}$*** measurements with distance. Several mathematical operations or signal processing functions, however, can be performed on the $RRSS_{BS}$ or ***$SRSS_{MS}$*** measurements to derive more robust relative signal strength values, thereby overcoming or substantially compensating for the adverse Rayleigh fading effects. Examples of such signal processing functions include averaging, taking the strongest value and weighting the strongest value with a greater coefficient than the weaker value, then averaging the results. This signal processing technique takes advantage of the fact that although a Rayleigh fade may often exist in either the forward or reverse path, it is much less probable that a Rayleigh fade exists simultaneously on both the reverse and forward link.
>
> Dupray, column 26, line 28 through 48

(***emphasis supplied***)

These sentences teach that Rayleigh fading can affect both the forward link measurements and the reverse link measurements and can be compensated for, in well-known fashion. There is no text here which is relevant to the issue at hand.

II. Second Cited Portion of Dupray

(column 28, line 59, through line 66)

Dupray recites:

loc_sig_cluster	Provides access to the collection of location signature signal characteristics derived from communications between the target MS 140 and the base station(s) detected by this MS (discussed in detail hereinbelow); in particular, the location data accessed here is provided to the first order models by the signal processing subsystem 1220; i.e., access to the "loc sigs" (received at "timestamp" regarding the location of the target MS)

This teaches a field in a location hypothesis. Nowhere in this portion does Dupray teach teach that the value of the forward signal measurement can be deduced from the value of the reverse signal measurement.

III. Third Cited Portion of Dupray

(column 37, line 12 through line 30)

Dupray recites:

> Low Level Wireless Signal Processing Subsystem for Receiving and Conditioning Wireless Signal Measurements
>
> A first functional group of location engine 139 modules is for performing signal processing and filtering of MS location signal data received from a conventional wireless (e.g., CDMA) infrastructure, as discussed in the steps (23.1) and (23.2) above. This group is denoted the signal processing subsystem 1220 herein One embodiment of such a subsystem is described in the U.S. copending patent application titled, "Wireless Location Using A Plurality of Commercial Network Infrastructures," by F. W LeBlanc, Dupray and Karr filed Jan. 22, 1999 and having application Ser. No. 09/230,109. Note that this copending patent application is incorporated herein entirely by reference since it may contain essential material for the present invention. In particular, regarding the signal processing subsystem 20. However, various other portions of this copending patent application may also provide essential material for the present invention.

Dupray here describes the function of one of his modules. Nowhere in this portion does Dupray teach or suggest that the value of the forward signal measurement can be deduced from the value of the reverse signal measurement.

For this reason, the applicants respectfully submit that the rejection of claim 1 is traversed.

Because claims 2 through 7 depend on claim 1, the applicants respectfully submit that the rejection of them is also traversed.

Claim 10 recites:

> **10.** A method comprising:
>
> *deducing a signal strength of a first signal, R_D, at a wireless terminal based on a signal-strength measurement of a second signal, R_U, at the location where said first signal is transmitted*; and
>
> estimating the location of said wireless terminal based on said signal strength of said first signal, R_D.
>
> (*emphasis supplied*)

For the reasons given above with respect to claim 1, nowhere does Dupray teach or suggest, alone or in combination with the other references, what claim 10 recites – namely *deducing a signal strength of a forward signal, R_D, at a wireless terminal based on a signal-strength measurement of an reverse signal, R_U* at the location where the forward signal, R_D, is transmitted.

For this reason, the applicants respectfully submit that the rejection of claim 10 is traversed.

Because claims 11 through 16 and 19 depend on claim 11, the applicants respectfully submit that the rejection of them is also traversed.

Claim 20 recites:

> **20. (original)** A method comprising:
>
> deducing a signal strength of a first signal, R_D, at a wireless terminal based on an attenuation of a second signal, A_U, that is transmitted by said wireless terminal; and
>
> estimating the location of said wireless terminal based on said signal strength of said first signal, R_D.
>
> (*emphasis supplied*)

For the reasons given above with respect to claim 1, nowhere does Dupray teach or suggest, alone or in combination with the other references, what claim 20 recites – namely deducing a signal strength of a forward signal, R_D, at a wireless terminal based on an attenuation of a second signal, A_U, that is transmitted by said wireless terminal.

For this reason, the applicants respectfully submit that the rejection of claim 10 is traversed.

Because claims 21 through 26 depend on claim 20, the applicants respectfully submit that the rejection of them is also traversed.

35 U.S.C. 103 Rejection of Claims 8, 9, 17, 18, 27 and 28

Claims 8, 9, 17, 18, 27 and 28 were rejected under 35 U.S.C. 103(a) as being unpatentable over D.J. Dupray, U.S. Patent 6,249,252 (hereinafter "Dupray") in view K. Okanoue et al., U.S. Patent Application 2003/0064733 A1 (hereinafter "Okanoue"). The applicants respectfully traverse the rejection.

Claim 1 recites:

> **1.** A method comprising:
>
> *deducing a signal strength of a first signal, R_D, at a wireless terminal based on a transmit strength of a second signal, T_U, that is transmitted by said wireless terminal*; and
>
> estimating the location of said wireless terminal based on said signal strength of said first signal, R_D.
>
> (*emphasis supplied*)

Because claims 8 and 9 depend on claim 1, and because Okanoue fails to cure the deficiencies of Dupray with respect to claim 1, the applicant respectfully submits that the rejection of claims 8 and 9 is traversed.

Claim 10 recites:

> **10.** A method comprising:
>
> *deducing a signal strength of a first signal, R_D, at a wireless terminal based on a signal-strength measurement of a second signal, R_U, at the location where said first signal is transmitted*; and
>
> estimating the location of said wireless terminal based on said signal strength of said first signal, R_D.
>
> (*emphasis supplied*)

Because claims 17 and 18 depend on claim 10, and because Okanoue fails to cure the deficiencies of Dupray with respect to claim 10, the applicant respectfully submits that the rejection of claims 17 and 18 is traversed.

Claim 20 recites:

> **20. (original)** A method comprising:
>
> deducing a signal strength of a first signal, R_D, at a wireless terminal based on an attenuation of a second signal, A_U, that is transmitted by said wireless terminal; and
>
> estimating the location of said wireless terminal based on said signal strength of said first signal, R_D.

(*emphasis supplied*)

Because claims 27 and 28 depend on claim 20, and because Okanoue fails to cure the deficiencies of Dupray with respect to claim 20, the applicant respectfully submits that the rejection of claims 27 and 28 is traversed.

Request for Reconsideration Pursuant to 37 C.F.R. 1.111

Having responded to each and every ground for objection and rejection in the Office action mailed August 11, 2005, applicants request reconsideration of the instant application pursuant to 37 CFR 1.111 and request that the Examiner allow all of the pending claims and pass the application to issue.

Should there remain unresolved issues the applicant respectfully requests that Examiner telephone the applicants' attorney at 732-578-0103 x11 so that those issues can be resolved as quickly as possible.

Respectfully,
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